



Service Manual

TV 4136VT mit Scartbuchse

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This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.



ITS Service D. Radeck GmbH
Zentralwerkstatt und Ersatzteildepot
für ITS- und ICE-Produkte



ITS Service D. Radeck GmbH
Lademannbogen 49
2000 Hamburg 63

Zentrale : (0 40) 53 89 90-0
Technische Auskunft: (0 40) 53 89 90-42
ET-Bestellung : (0 40) 53 89 90-44
Rep.-Abwicklung : (0 40) 53 89 90-45
Telefax : (0 40) 53 89 90-48

Service Manual

~~Wichtiger Hinweis: Kopieren dieses Handbuchs ist gesetzlich verboten!~~

TV 4136VT	mit Scartbuchse
TV 6136VT	mit Scartbuchse
Serv.-Man.	100035

Bei technischen Änderungen können Ergänzungsblätter
angefordert werden.

Specifications are subject to change without notice.

Bitte beachten Sie die evtl. einliegenden
Serviceinformationen.

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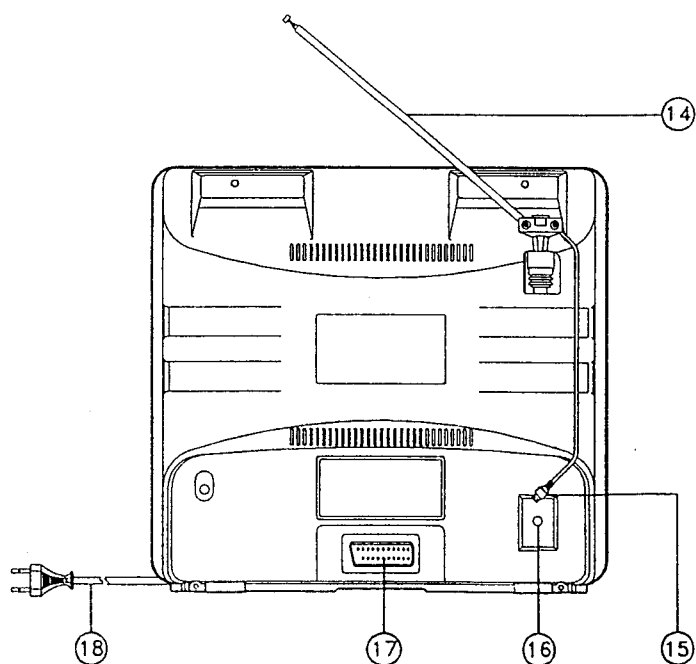
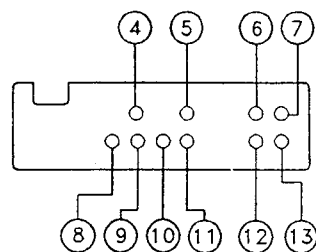
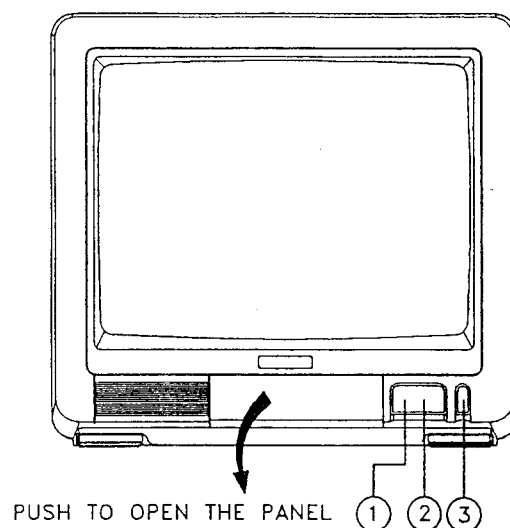
SPECIFICATION

SYSTEM		:	PAL-B/G		
DESTINATION		:	W.GERMANY	ITALY	
CHANNEL COVERAGE	VHF LOW	:	E2 -E4, SS1 - SS3	CH	A - C CH
			S1 - S2	CH	
	VHF HIGH	:	E5 - E12, S3 - S20	CH	D - H CH
	UHF	:	21 - 69	CH	21 - 69 CH
FREQUENCY RANGE	VHF LOW	:	48.25 - 112.25	MHz	
	VHF HIGH	:	119.25 - 294.25	MHz	
	UHF	:	471.25 - 855.25	MHz	
SCANNING	LINES	:	625	LINES	
	HORIZONTAL	:	15625	Hz	
	VERTICAL	:	50	Hz	
IF FREQUENCY	VIDEO	:	38.9	MHz	
	SOUND	:	33.4	MHz	
	CHROMA	:	34.47	MHz	
VISION/SOUND SEPARATION		:	5.5	MHz	
SENSITIVITY	VHF LOW	:	32	uV	
	VHF HIGH	:	56	uV	
	UHF	:	80.	uV	
OUTPUT POWER	MAXIMUM	:	900	mW	
	10% THD	:	700	mW	
C.R.T.		:	14" (36 cm) Diagonal, 22.5 mm Neck Diameter 90° Deflection Angle		
SPEAKER		:	50 mm x 90 mm, 16 Ohm		
ANTENNA IMPEDANCE		:	75	Ohm	
POWER CONSUMPTION		:	70	Watts	
VIDEO INPUT		:	1vp-p (POSITIVE VIDEO) 75 OHm IMPEDANCE		
AUDIO INPUT		:	0.5V r.m.s. (1 KHz) 47K OHm IMPEDANCE		



CONTROL LOCATION

1. Remote Sensor
2. Power Indicator
3. Power Switch (ON/OFF)
4. Auto Tune Button
5. Picture Selector Button
6. Volume/Picture Function Button (+)
7. Programme Up Button
8. TV/AV Button
9. Tuning Down Button
10. Tuning Up Button
11. Memory Button
12. Volume/Picture Function Button (-)
13. Programme Down Button
14. Rod Antenna
15. Rod Antenna Connector
16. Antenna Input (Tuner)
17. 21 Pin Scart Socket
18. AC Power Cord



ALIGNMENT INSTRUCTION

I. PLEASE READ BEFORE ATTEMPTING SERVICE

1. Never disconnect any leads while receiver is in operation.
2. Disconnect all power before attempting any repairs.
3. Do not short any portion of the circuit while power is on.
4. For safety reasons, all parts replaced should be identical, (for parts and part numbers see parts list).
5. Before alignment the set must be pre-heated for 30 minutes or more and erase magnetism thoroughly from CRT front chassis frame by erase coil.

II. TEST EQUIPMENT

- | | |
|-----------------------------------------|------------------------------------------|
| 1. VIF Sweep Generator | 8. High Voltage Meter |
| 2. SIF Sweep Generator | 9. Ampere Meter (0.5 Class, DC 3mA Max.) |
| 3. Colour Bar/Dot/Cross Hatch Generator | 10. Demagnetizing Coil |
| 4. DC Power Supply (14V) | 11. Philips Pattern Generator |
| 5. Oscilloscope | 12. Frequency Counter |
| 6. Vacuum Tube Voltmeter | 13. Continuous Waveform Generator |
| 7. Voltage Meter | 14. 21 Pin Connector |

III. TANK COIL ALIGNMENT

A. PREPARATION STEP (SEE FIG.2)

1. Connect OUTPUT lead of VIF Sweep Generator between TP 109 (SA 101 Pin 5) and GND. (80dB)
2. Connect lead of FROM DET between TP 106 and GND.
3. Supply DC +14V to (+) lead of D408.
4. Apply a +5.2V DC dummy AGC bias voltage to TP 104.

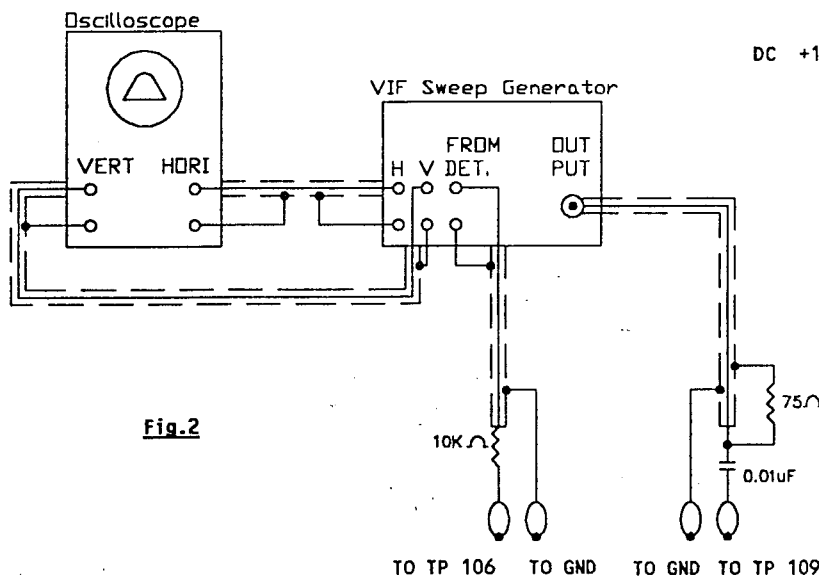


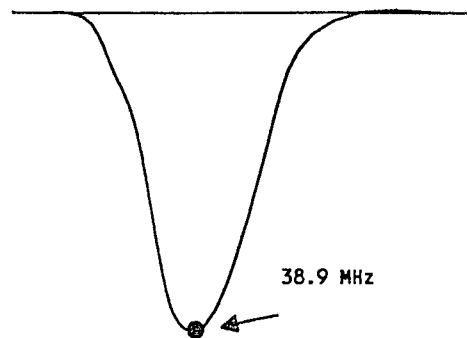
Fig.1

Fig.2

B. ALIGNMENT STEP (See FIG.3)

1. Adjust T105 to obtain response curve at 38.9 MHz.

Fig.3



IV. VIF ALIGNMENT

A. PREPARATION STEP

1. Connect output lead of VIF Sweep Generator between tuner test point TP and tuner case. (70dB)
2. Connect resistor (100 Ohm) between TP 101 and TP 102.
3. Supply DC +14V to (+) lead of D408.
4. Supply RF AGC bias voltage to TP 104.

B. ALIGNMENT STEP

1. Connect the DETECTOR (A) to (TP108). (See Fig.4a)
2. Connect Sync. Oscilloscope through the DETECTOR (B).
3. Increase the output level of Sweep Generator in 50 dBuV, to obtain the waveform as in Fig.4b.
4. Adjust T101 for 31.9 MHz as shown in Fig.4b.
5. Adjust T102 for 40.4 MHz as shown in Fig.4b.
6. Connect the FROM DET to the TP 106 without through the detector.
7. Subtract 50 dB to adjust T103 and then to adjust tuner converter coil to obtain the waveform as in Fig.4c.

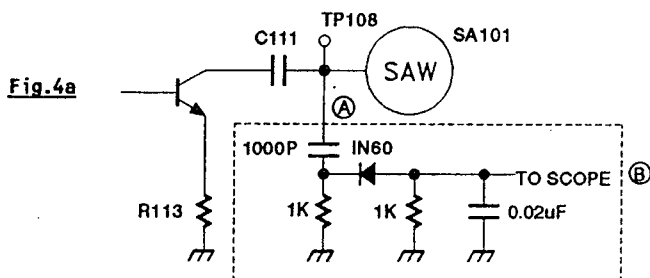


Fig.4b

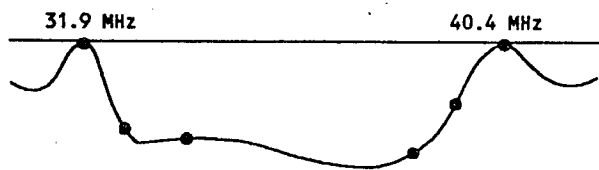
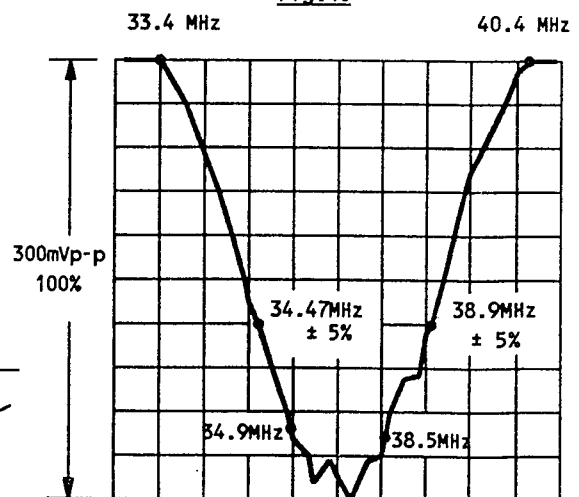


Fig.4c



V. AFC ALIGNMENT

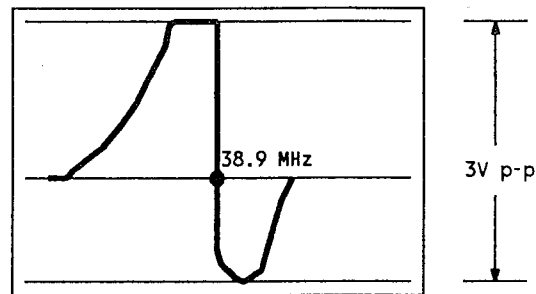
A. PREPARATION STEP

1. Connect RF AGC 5.2V bias voltage at TP 104.
2. Remove the damping resistor (100 Ohm) at TP 101, TP 102.
3. Connect output lead of Continuous Waveform Generator to tuner point TP & tuner case. (85dB)
4. Connect lead of FROM DET between TP 107 and GND.
5. Supply DC +14V to (+) lead of D408.

B. ALIGNMENT STEP

1. Adjust T106 make the picture carrier 38.9 MHz is centered as in Fig.5.
2. After AFC alignment to join the Soldering Pad of C147 GND to GND.

Fig.5



VI. SIF ALIGNMENT

A. PREPARATION STEP (SEE FIG.6)

1. Connect output lead of SIF Sweep Generator between TP 106 and GND.
2. Connect lead of FROM DET between TP 105 and GND.
3. Supply DC +14V to (+) lead of D408.

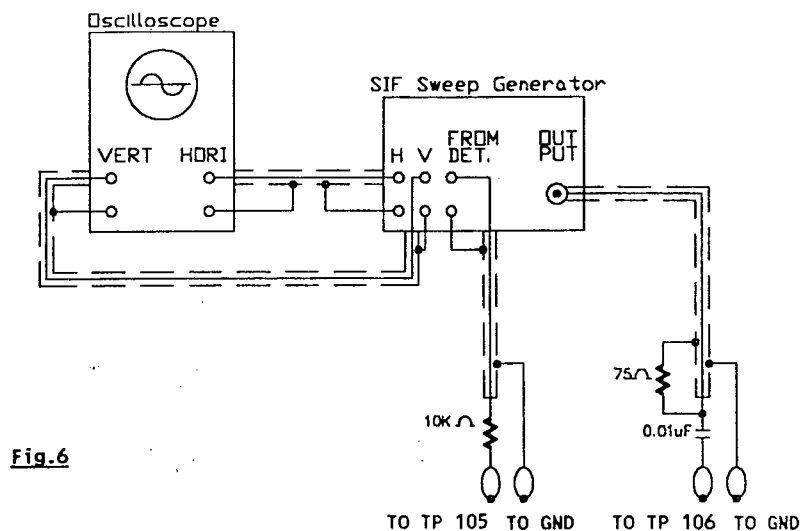


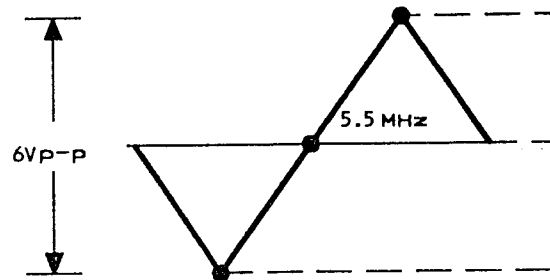
Fig.6

B. ALIGNMENT STEP

1. Adjust output of Sweep Generator to achieve 6Vp-p between markers of 100 KHz.
2. Adjust T104 so that sound carrier is centered as in Fig.7.
3. Confirm the waveform as in Fig.7.

NOTE : Input Level : 90 dB.

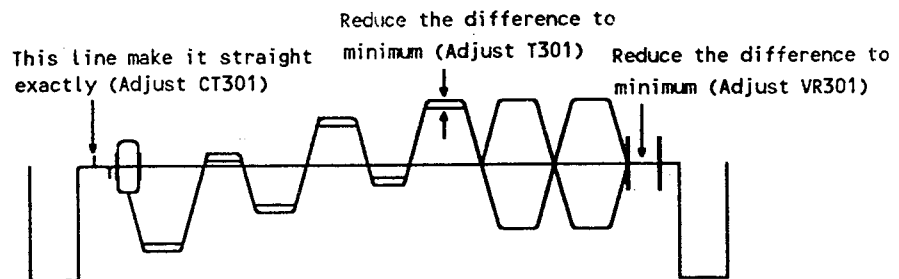
Fig.7



VII. COLOUR DEMODULATOR ALIGNMENT, DELAY LINE ALIGNMENT

1. Receive Philips Pattern.
2. Set Contrast control to minimum position.
3. Set Colour control to maximum position.
4. Connect Oscilloscope to TP 301 (B-out).
5. Adjust CT301 to obtain the waveform as in Fig.8.
6. Adjust VR301 to obtain the waveform as in Fig.8.
7. Adjust T301 to obtain the waveform as in Fig.8.

Fig.8



VIII. B+ ADJUSTMENT

1. Connect the digital voltmeter to TP 401.
2. Adjust semi-fixed resistor VR901 until meter reading DC 112.25V \pm 0.25V.

IX. HORIZONTAL CIRCUIT ADJUSTMENT

1. Receive Monoscope Pattern input signal 80 dBuV.
2. IC301 (PIN 28,29) short by 1K Ohm resistor.
3. Adjust VR303 to obtain the picture running at center.
4. Remove the 1K Ohm resistor.

X. VERTICAL CIRCUIT ADJUSTMENT

1. Receive the Monoscope Pattern.
2. Connect the Frequency Counter between V-DEFLECTION YORK and GROUND.
3. Connect lead wire from TP 106 TO GND.
4. Adjust V-HOLD (VR304) to the reading 44 Hz.
5. Remove lead wire TP 106 TO GND.
6. Adjust V-SIZE (VR401) control to obtain a normal picture.

XI. WHITE BALANCE ADJUSTMENT

1. Receive a black and white picture signal.
2. Turn the red, green and blue LOW LIGHT (VR501, VR502, VR504) controls to middle position and turn the DRIVE (VR503, VR505) control to middle position.
3. Turn the Screen control on the FBT to minimum position.
4. Set the Sub-Brightness (VR305) control to middle position, then set the Contrast control and Brightness control, Colour control to minimum position.
5. CN403 (PIN 1,2) with Join together.
6. Connect volt meter between (R508) and ground, and adjust Brightness control to the reading of DC 138V ($\pm 2V$). If DC 138V cannot be obtain, adjust the Sub-Brightness control (VR305).
7. Slowly turn the Screen control clockwise to the point where a horizontal line just illuminates.
8. Adjust VR501 to get a red horizontal line on CRT.
9. Adjust VR502 to get a yellow horizontal line on CRT.
10. Adjust VR504 to get a white horizontal line on CRT.
11. Take the joiner out of CN403.
12. Adjust Drive (VR503, VR505) control to obtain a uniform white picture.

XII. FOCUS ADJUSTMENT

1. Set Contrast control to maximum position and Brightness control to middle position.
2. Adjust Focus control (on the FBT) to obtain a sharpest picture on the CRT.

XIII. RF AGC

1. Receive the signal of BAND-III (VHF HIGH) channel and set the AFC switch to 'ON' position.
2. Set the input field strength in $62 \pm 3dB$.
3. Adjust RF AGC control (VR101) to the point where noise is disappeared.

XIV. SUB-BRIGHTNESS ALIGNMENT

1. Receive the Monoscope Pattern
2. Set controls as follows :
BRIGHTNESS control MID. position
CONTRAST control MID. position
COLOUR control MID. position
3. Adjust SUB-BRIGHTNESS (VR305) control to get the nine step of the GREY SCALE in the Monoscope Pattern.

XV. COLOUR PURITY ADJUSTMENT (SEE FIG.9)

BEFORE ALL ADJUSTMENT DESCRIBED BELOW ARE ATTEMPTED, V-HOLD, H-HOLD, V-HIGH, B+ VOLTAGE AND FOCUSING ADJUSTMENT MUST BE COMPLETED.

1. Place the TV receiver facing NORTH or SOUTH.
2. Plug in TV receiver and turn in on.
3. Operate the TV receiver over 30 minutes.
4. Fully degauss the TV receiver by using an external degaussing coil.
5. Receive a crosshatch pattern and adjust the static convergence, control roughly.
6. Loosen the clamp screw of the deflection yoke and pull the deflection yoke towards you.
7. Fully turn the red and blue Drive (VR503, VR505) controls counter-clockwise.
8. Adjust the purity magnets so that green field is obtained at the center of the screen.
9. Slowly push the deflection yoke towards bell of CRT and set it where a uniform green field is obtained.
10. Tighten the clamp screw of the deflection yoke.

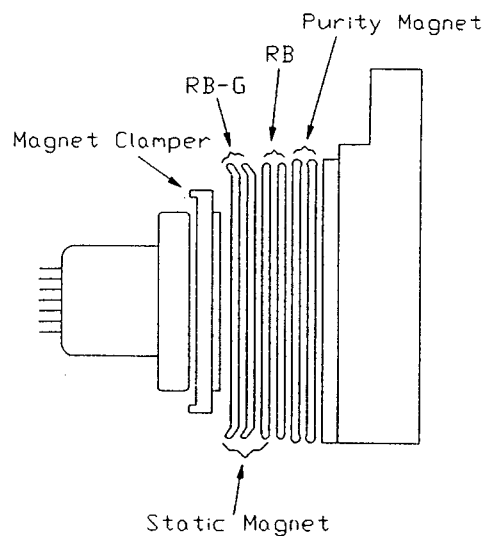
XVI. ON SCREEN ADJUSTMENT

1. Receive the Monoscope Pattern.
2. Adjust ON SCREEN (VR601) for adjust the lettering to center of CRT.

XVII. CONVERGENCE ADJUSTMENT (SEE FIG.9)

1. Receive a dotted pattern.
2. Unfix the convergence magnet clamber and align red with blue dots at the center of the screen by rotating (R,B) static convergence magnets.
3. Align Red/Blue with green dots at the center of the screen by rotating (RB-G) static convergence magnet.
4. Fix the convergence magnets by turning the clamber.
5. Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good overall convergence.
6. Fix the deflection yoke by wedges.
7. If purity error is found, follow "PURITY ADJUSTMENT" instructions.


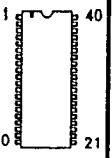
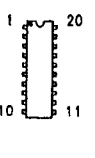






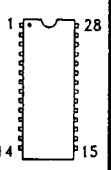
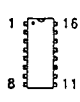
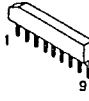
Fig-9



XVIII. TELETEXT PICTURE ALIGNMENT

1. Receive a pattern with teletext signal.
2. Select a teletext page.
3. Connect D.C. voltage meter to TP 303 (IC 001 Pin 28) and GND.
4. Adjust T001 to obtain $0.6 \pm 0.05V$.

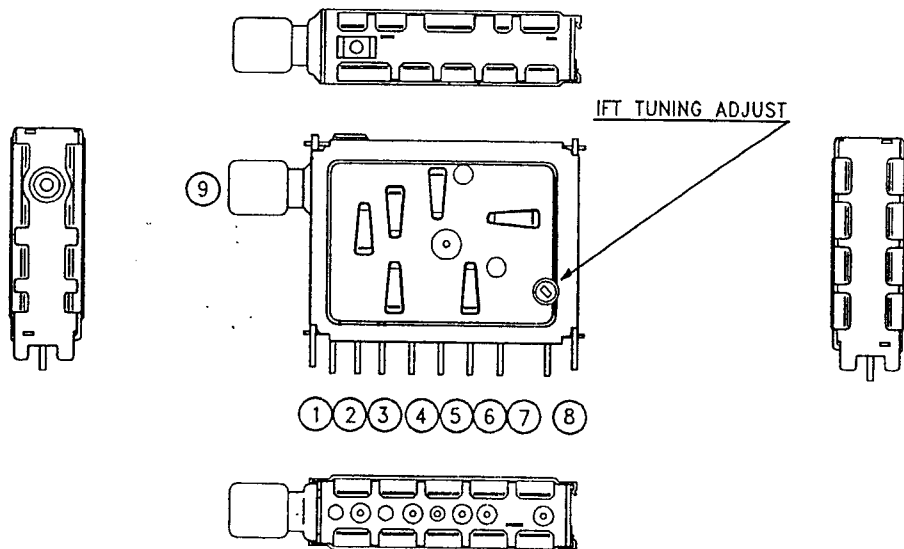
TRANSISTOR AND IC IDENTIFY

	2SD400F		TMS73C47		CF72306		TBA820M XL93LC46		2SD1554 2SD1545
	2SC2482	TOP VIEW		TOP VIEW		TOP VIEW	TA8701N		LA7830
	2SB774T 2SA1015 2SC388A 2SC1815Y		AN5601K		CF70095		HCF4066		LA7910
		TOP VIEW		TOP VIEW		TOP VIEW			

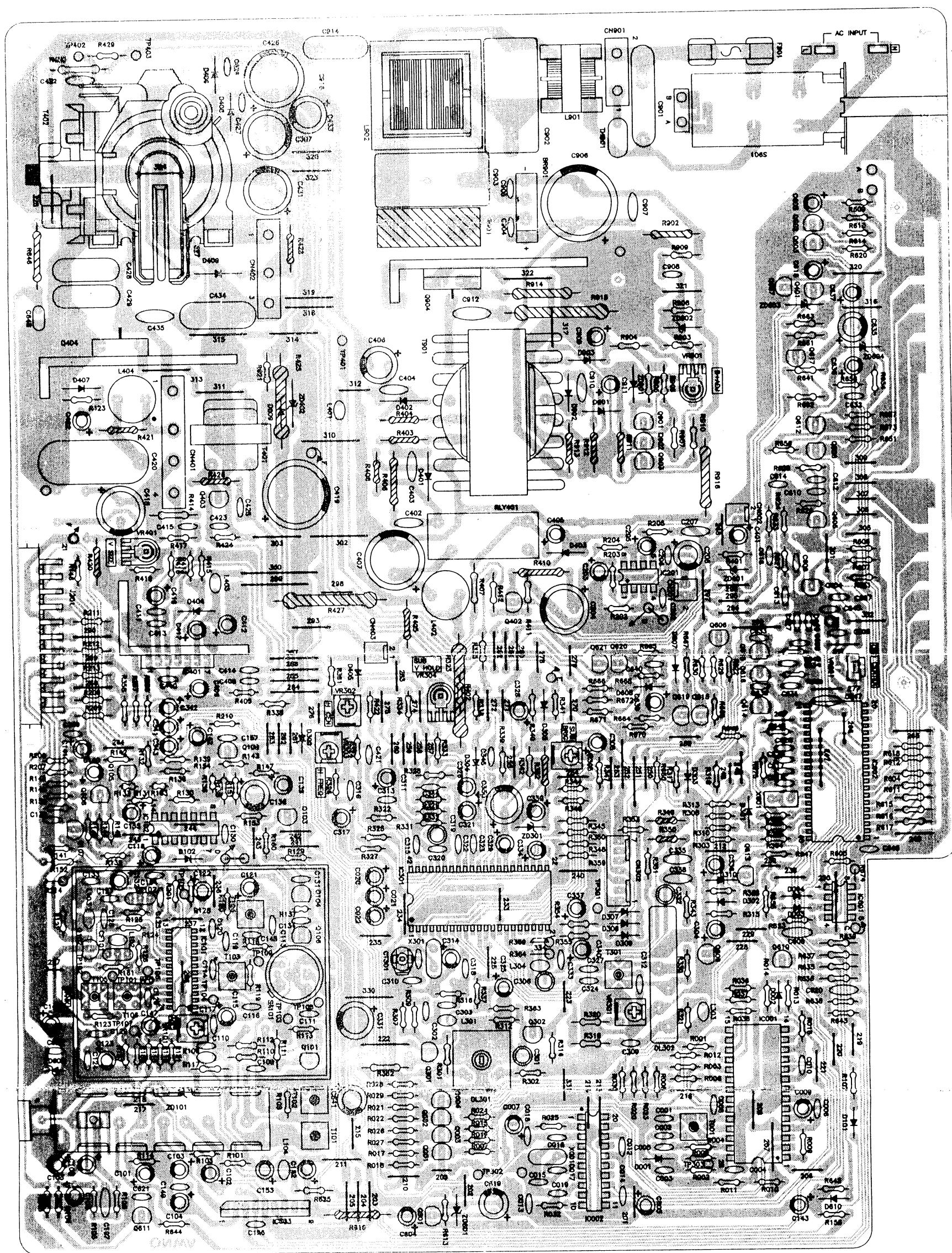
PICTORIAL VIEW OF TUNER

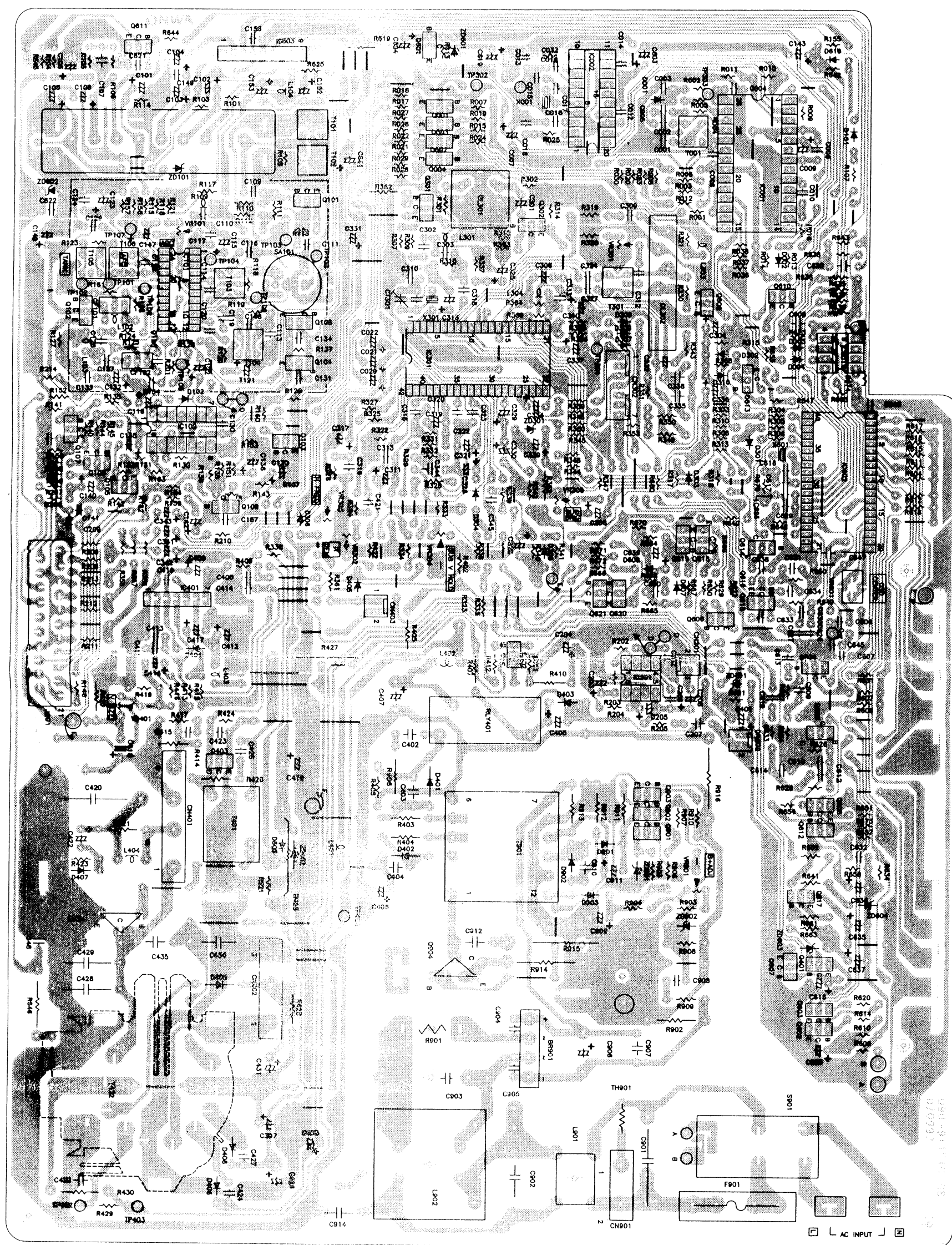
TERMINAL NO.	1	2	3	4	5	6	7	8	9
TERMINAL NAME	BU	VT	BH	AGC	BL	AFT	BM	IF	V/U ANT

SUPPLY VOLTAGE (V)				
TERM.	ch.	VHF LO	VHF HI	UHF
7	BM	12	12	12
5	BL	12	OPEN	12
3	BH	OPEN	12	OPEN
1	BU	OPEN	OPEN	12



COMPONENT DIAGRAM OF MAIN BOARD (TOP VIEW)



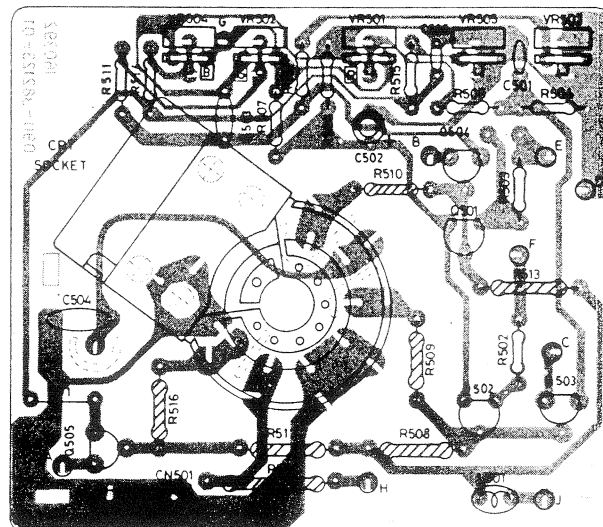
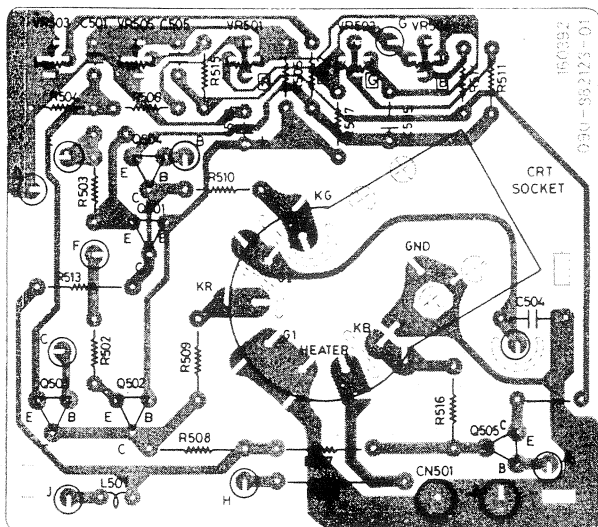


COMPONENT DIAGRAM

CRT BOARD

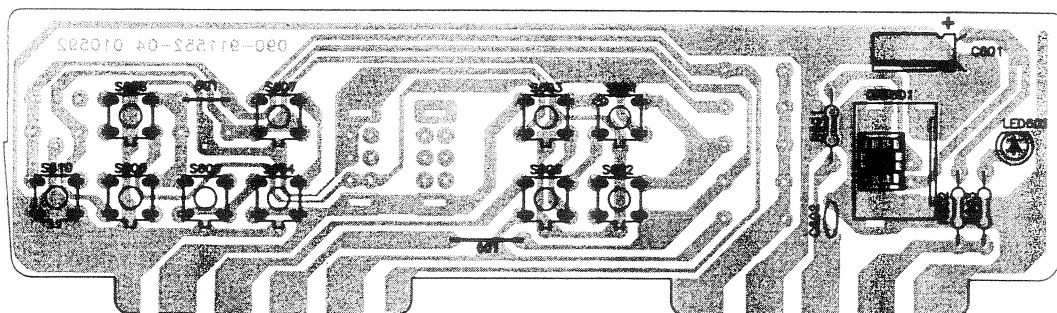
(BOTTOM VIEW)

(TOP VIEW)

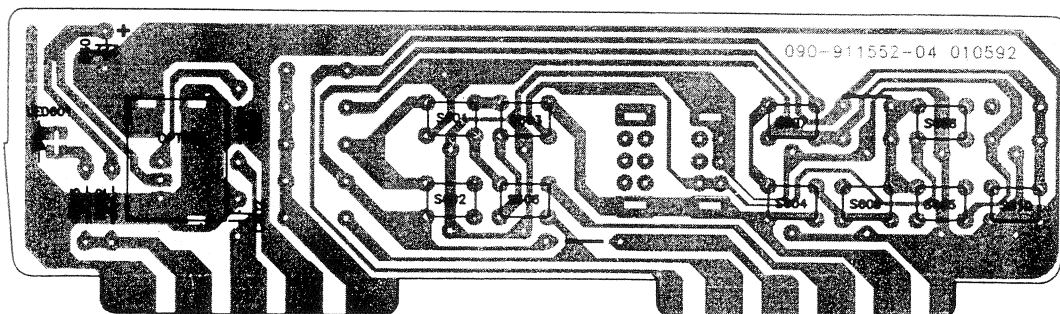


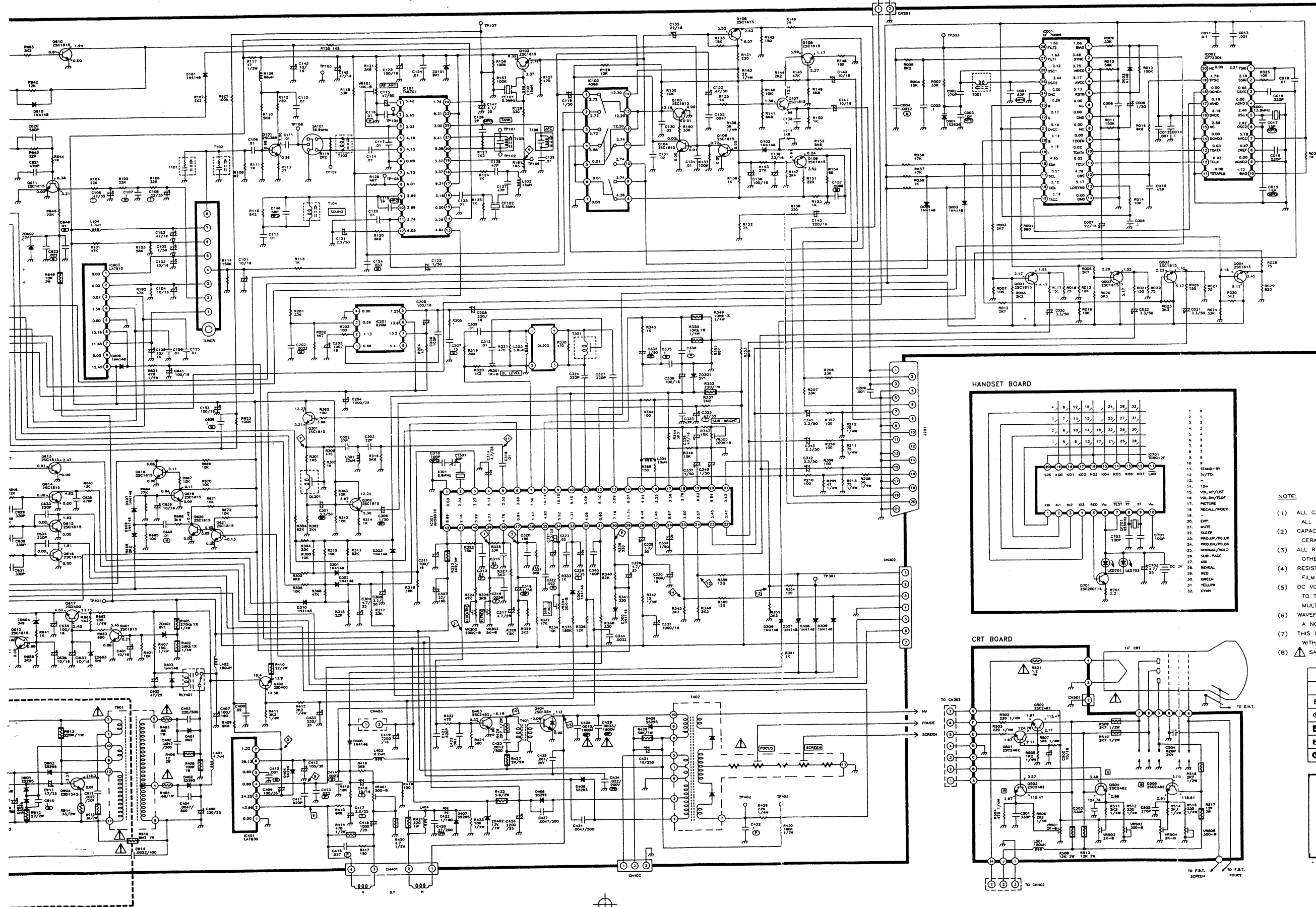
FUNCTION BOARD

(TOP VIEW)

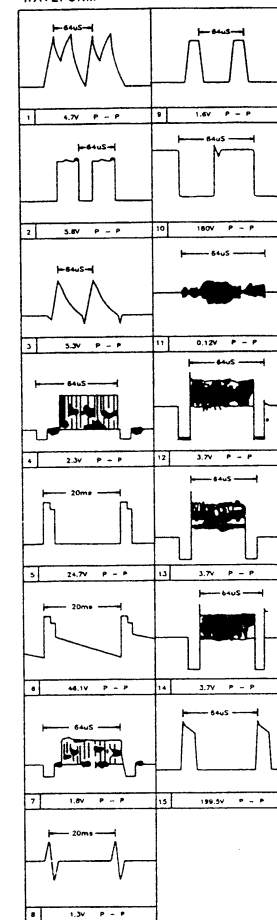


(BOTTOM VIEW)





WAVEFORM



NOTE:

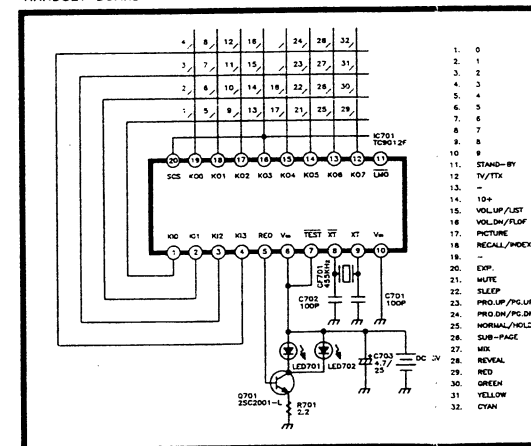
- (1) ALL CAPACITORS ARE IN μF UNLESS OTHERWISE NOTED. ALL CAPACITORS ARE 50WV UNLESS OTHERWISE NOTED. CAPACITOR NOT SPECIFICALLY DESIGNATED ARE CERAMIC CAPACITORS.
- (2) ALL RESISTORS ARE IN Ω 1/16 WATT UNLESS OTHERWISE NOTED.
- (3) RESISTOR NOT SPECIFICALLY DESIGNATED ARE CARBON FILM RESISTORS.
- (4) DC VOLTAGE ARE MEASURED FROM POINT INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER TEST.
- (5) WAVEFORMS ARE TAKEN WITH SETTING CONTROLS TO A NORMAL CONDITIONS (COLOR PHILIPS PATTEN).
- (6) THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.
- (7) SAFETY CRITICAL DEVICE.

CIRCUIT SYMBOLS

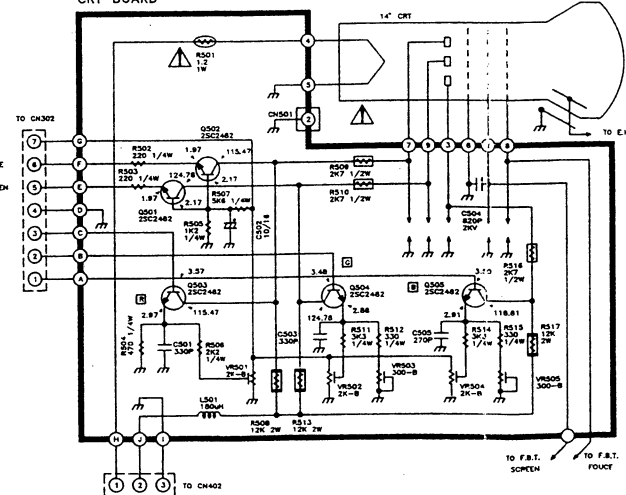
RESISTOR	CAPACITOR

TV 4136VT
TV 6136VT
DEZ.1992

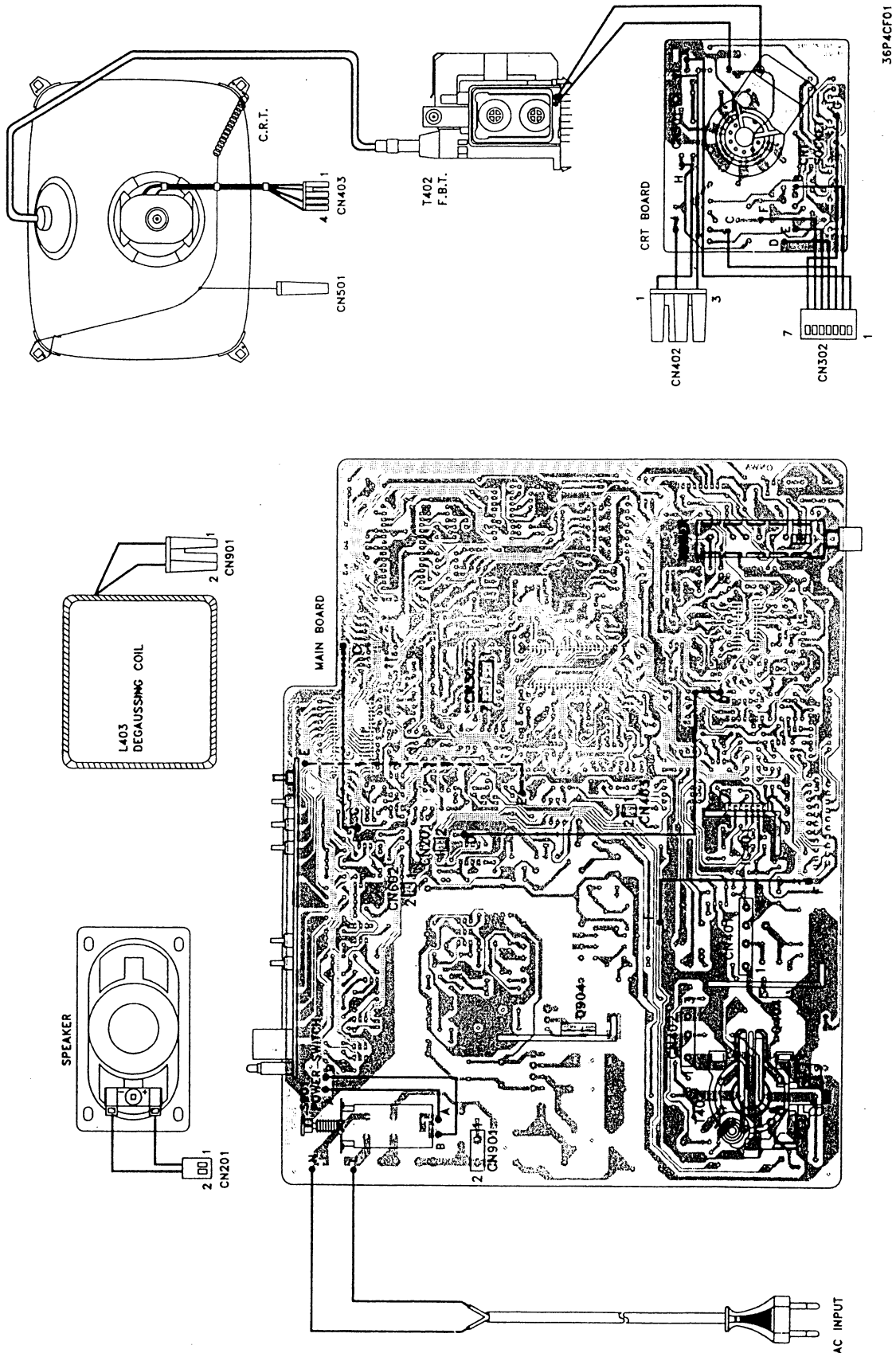
HANDSET BOARD



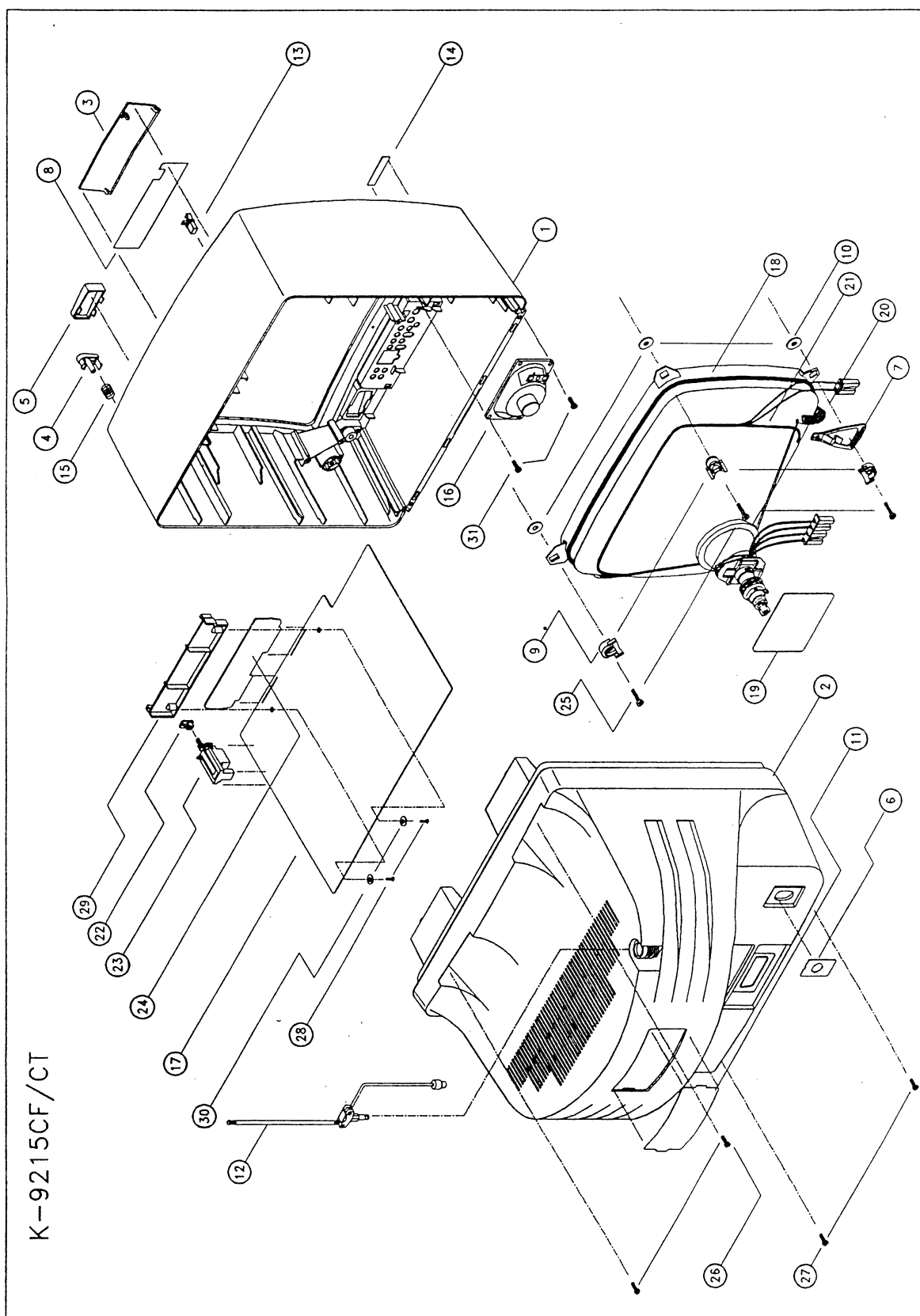
CRT BOARD



WIRING DIAGRAM



EXPLODED VIEW DIAGRAM



K-9215CF/CT

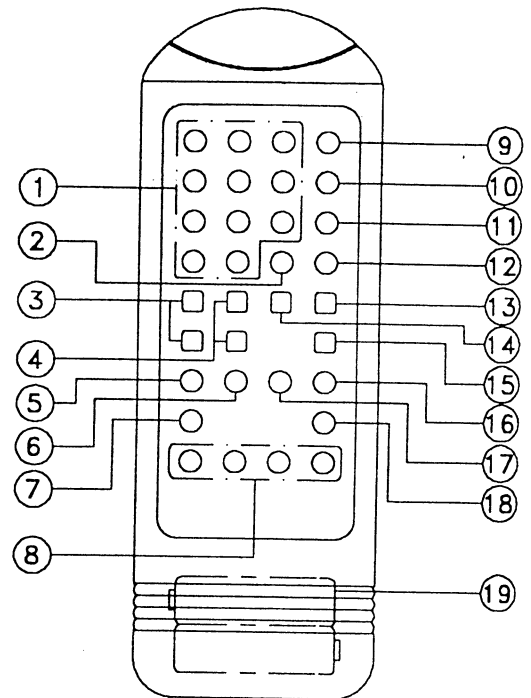
EXPLODED VIEW PARTS LIST:

<u>LOCATION</u>	<u>PARTS NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
1	200-921501-01	FRONT CABINET	1
2	202-911503-01	BACK CABINET	1
3	219-921501-01	PANEL DOOR	1
4	292-921501-01	POWER KNOB	1
5	263-921501-01	LENS	1
6	418-911540-01	TUNER COVER W/SILK-PRINTING	1
7	259-911501-01	DEGAUSSING COIL CLIP	2
8	418-911514-01	PRESET OVERLAY	1
9	229-371501-01	C.R.T. MTG CLIP	4
10	334-391501-01	RUBBER RING (T=3mm)	4
11	412-921501-08	MODEL PLATE	1
12	779-911501-01	ROD ANTENNA ASS'Y	1
13	702-391201-02	DOOR LOCKER ASS'Y	1
14	411-371601-05	NAME PLATE	1
15	477-921501-01	COMPRESSION SPRING	1
16		SPEAKER	1
17		MAIN P.C. BOARD ASS'Y	1
18		C.R.T 14"	1
19		C.R.T. P.C. BOARD ASS'Y	1
20	477-371601-01	C.R.T. SPRING	1
21		DEGAUSSING COIL ASS'Y	1
22	239-391201-01	ADAPTOR FOR POWER SWITCH	1
23	046-100001-14	POWER SWITCH	1
24		FUNCTION P.C. BOARD ASS'Y	1
25	614-500238-10	SELF-TAPPING SCREW B/T 5 x 38 mm	4
26	614-500416-10	SELF-TAPPING SCREW B/T 5 x 16 mm	2
27	614-400416-10	SELF-TAPPING SCREW B/T 4 x 16 mm	2
28	612-300110-10	SELF-TAPPING SCREW W/T 3 x 10 mm	2
29	229-911502-01	FUNCTION P.C. BOARD MOUNTING BRACKET	1
30	530-080032-08	FIBRE WASHER	2
31	614-400408-10	SELF-TAPPING SCREW B/T 4 x 8 mm	2

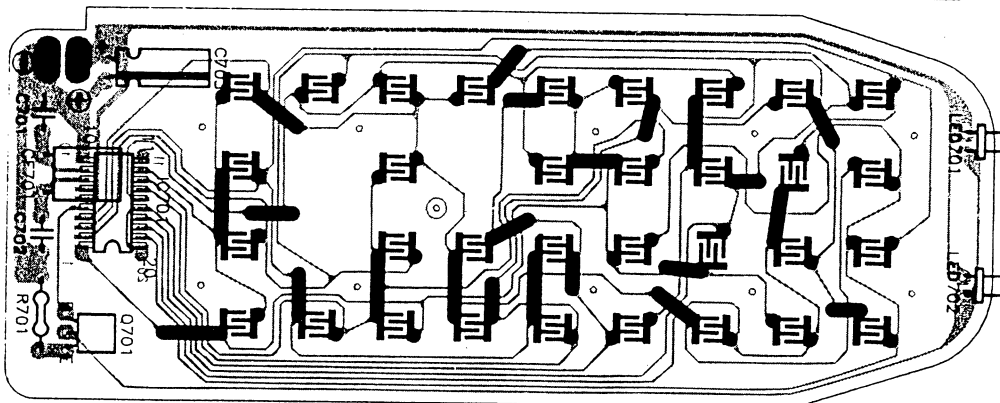
REMOTE HANDSET UNIT

CONTROL LOCATION

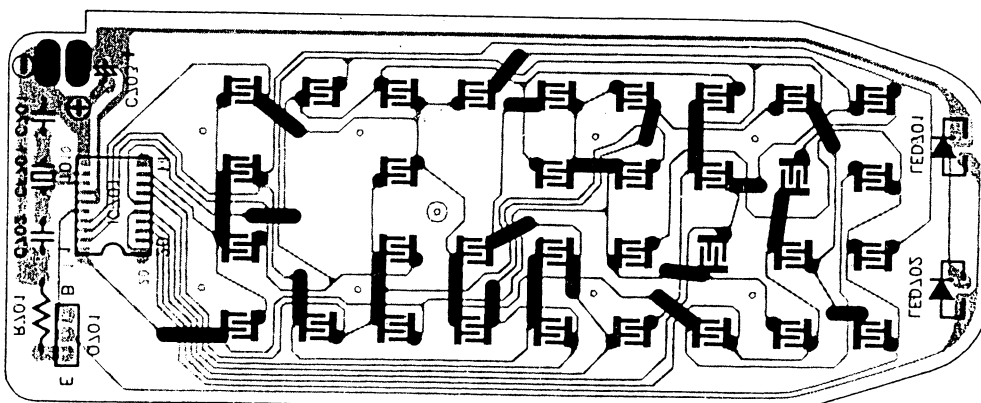
1. Number Buttons (1-9, 0, 10+)
2. Normal Button
3. Program Up/Down Buttons (TV Mode),
Page Up/Down Buttons (Teletext Mode)
4. Volume and Picture Function
Up/Down Buttons (TV Mode),
List/FLOF Buttons (Teletext Mode)
5. Hold Button
6. Subpage Button
7. Mix Button
8. Colour Button (Red, Green, Yellow, Cyan)
9. Stand by Button
10. Sleep Button
11. Recall Button
12. Mute Button
13. TV/AV Button
14. Picture Selector Button
15. TV/Teletext Button
16. Expand Button
17. Reveal Button
18. Index Button
19. Battery Compartment Lid



COMPONENT DIAGRAM OF REMOTE HANDSET P.C. BOARD :

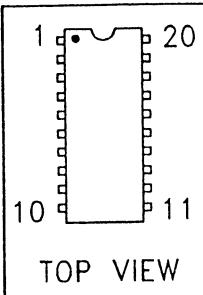
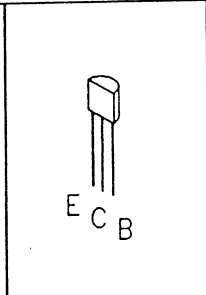


(TOP VIEW)



(BOTTOM VIEW)

TRANSISTOR & IC IDENTIFY

 <p>TOP VIEW</p>	
TC9012F	2SC2001K/L CSB455EB

REMOTE HANDSET UNIT OF EXPLODED VIEW PARTS LIST :

LOCATION	PARTS NO.	DESCRIPTION	QTY
1	201-000401-01	TOP CABINET	1
2	334-000202-01	CONDUCTIVE RUBBER	1
3		HANDSET P.C. BOARD ASS'Y	1
4	477-390203-01	CONTACT SPRING WIRE +, - VE	1
5	477-390502-01	CONTACT SPRING WIRE - VE	1
6	477-390501-01	CONTACT SPRING WIRE + VE	1
7	263-390401-01	FRONT LENS	1
8	203-000401-01	BOTTOM CABINET	1
9	610-260108-00	SELF-TAPPING SCREW R/T 2.6 x 8 mm	1
10	210-000301-01	BATTERY COVER	1
11	411-000403-01	NAME PLATE	1

